trusted, and the difference between the urine of rabbits killed by cold and all other rabbit's urine is so great that it is most distinctly perceptible (auf das Entschiedenste fühlbar) without any quantitative experiments."

II. "On the Action of Chloride of Iodine upon Organic Bodies." By Maxwell Simpson, M.B., F.R.S. Received November 22, 1864.

In a former communication * I stated to the Society that chloride of iodine combines directly with ethylene and propylene gases. I have since ascertained that it also directly combines with those radicals which are at the same time both mono- and tri-atomic. Iodide of allyle and bromide of aldehydene, having the desired atomicity, were the bodies I selected for my experiments.

Action of Chloride of Iodine on Iodide of Allyle.—In order to determine the union of these bodies, it was simply necessary to mix and agitate them. The chloride of iodine used was in the form of a watery solution. During the agitation the mixture became warm, and assumed a dark colour from the liberation of iodine. To complete the reaction, it was gently heated over the lamp for a short time. By these means a dark oily liquid was obtained, which was separated from the excess of chloride of iodine, washed with dilute potash, then with pure water, and distilled. Almost the entire liquid passed over between 190° and 215° Cent. The fraction distilling between 205 and 210 being very considerable in quantity, was collected separately and analyzed, having been previously decolorized by agitation with mercury. The numbers obtained correspond sufficiently well with the formula $C_6 H_5 Cl_2 I$, as will be seen from the following Table :—

	Theory.		Experiment.
		Per cent.	
C_6	36·00	15·06	15·49
H_5	5·00	2·09	2·25
Cl_2	71·00	29·70	..
I	127·00	53·15	..
	239·00	100·00	

The excess of carbon is accounted for by the slight decomposition suffered by the liquid during distillation, which was evidenced by the liberation of iodine.

This body I propose to call iodo-bichlor-allyle. It is a colourless oil, is insoluble in water, and has a sweet and biting taste. The following equation will explain the reaction which generates this body ; it is a case of addition and double decomposition, $C_6 H_5 I + 2\,Cl\,I = C_6 H_5 Cl, Cl\,I + I\,I$. One equivalent of chloride of iodine converts, by double decomposition, the

* Proceedings, vol. xii. p. 278.

iodide into the chloride of allyle; and with this the other equivalent then directly combines.

Action of Chloride of Iodine on Bromide of Aldehydene.—A mixture of 1 volume of bromide of aldehydene and 2 volumes of chloride of iodine was exposed in a sealed tube to the temperature of 100° Cent. for about two hours. The tube was then opened, the excess of chloride of iodine removed, and the dark-coloured oil which was formed washed with dilute potash and distilled. The entire liquid passed over between 175° and 200° Cent., suffering at the same time slight decomposition with liberation of iodine. The portion distilling between 190° and 200° was collected apart, deprived of free iodine by agitation with mercury, and analyzed. The numbers obtained approach sufficiently near the formula $C_4 H_3 Br Cl I$ to leave no doubt as to its being the true one:—

	Theory.		Experiment.
		Per cent.	
C_4	24·0	8·90	9·47
H_3	3·0	1·10	1·43
Br	80·0	90·00	91·00
Cl	35·5		
I	127·0		
	269·5	100·00	

This body I suppose I must call iodo-chlor-brom-aldehydene. It is a colourless oil, is insoluble in water, and, like the former body, has a sweet and biting taste. It is formed by the direct addition of one atom of chloride of iodine to one atom of bromide of aldehydene.

I have also tried the action of chloride of iodine on cyanide of allyle, in the expectation of forming the body $C_6 H_5 Cy Cl I$, and from this, by the action of potash, the acid $C_8 H_8 O_8$. My expectations, however, were not realized. On heating these substances together as in the former cases, all the iodine of the chloride of iodine was set free; and I obtained on evaporating the liquor, instead of an oil, a mixture of chloride of ammonium and an organic acid, probably crotonic.

The solution of chloride of iodine employed in these and my former experiments on ethylene and propylene gases, was made by conducting a stream of chlorine into 1600 grains of water holding in suspension 700 grains of iodine. The mixture was kept cold and agitated repeatedly during the passage of the gas, which was interrupted when all the iodine, with the exception of a trace, had been dissolved.

It is highly probable that bromide of acetylene ($C_4 H_2 Br_2$) and similar non-saturated bodies may be also made to combine directly with chloride of iodine.